DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-000321
Date Inspected: 30-Jul-2007

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 800
OSM Departure Time: 1630
Location: Shanghai, China

CWI Name:
Inspected CWI report: ☐ Yes ☑ No ☐ N/A
Electrode to specification: ☐ Yes ☐ No ☑ N/A
Qualified Welders: ☐ Yes ☐ No ☑ N/A
Approved Drawings: ☑ Yes ☐ No ☐ N/A

CWI Present: ☐ Yes ☑ No
Rod Oven in Use: ☐ Yes ☐ No ☑ N/A
Weld Procedures Followed: ☐ Yes ☐ No ☑ N/A
Verified Joint Fit-up: ☑ Yes ☐ No ☐ N/A
Approved WPS: ☐ Yes ☐ No ☑ N/A
Delayed / Cancelled: ☐ Yes ☑ No ☐ N/A

Bridge No: 34-0006
Component: Tower Mock Up Assemblies-77M-89M-114M

Summary of Items Observed:

Caltrans Quality Assurance (QA) Inspector Robert Cuellar is present at the fabrication facility of Zenhua Port Machinery Company (ZPMC)., LTD for the purpose of monitoring activities relative to the subsequent fabrication of the SFOBB Self Anchored Suspension Bridge. Also present are Caltrans representatives Mr. Dave McClary, Mr. Bruce Berger, Mr. Alfredo Acuna, Mr.Patrick Lowry, Mr. John Kinsey, Mr. Keith Devonport, Mr. Stan Ku, Mr. Jim Merrill and Mr. Pete Siegenthaler. Only observations by QA Inspector Robert Cuellar are being recorded within this report as follows,

Item	Description	WBS	Dwg No.	Status
1		N/A	N/A	N/A

Tower Shop -77 Meter Mock-Up Assembly Area

1) During the morning hours the Caltrans QA Inspector was escorted by ZPMC representative Mr. Xu Jun (Eric). A second trip to the tower mock-up shop area was performed in the afternoon hours with the presence of Caltrans representative Mr. Stan Ku and without a ZPMC escort. The Caltrans QA Inspector observed that ZPMC has positioned three skin plate sub-assemblies on elevated steel supports. The Caltrans QA Inspector did not identify any distinguishing marks that identify the skin plate identification such as Skin Plate panel A, B, C, D, E..ie, etc, however the individual piece numbers reflect which skin plate is applicable to the observed plates. The Caltrans QA Inspector observed and recorded the following information

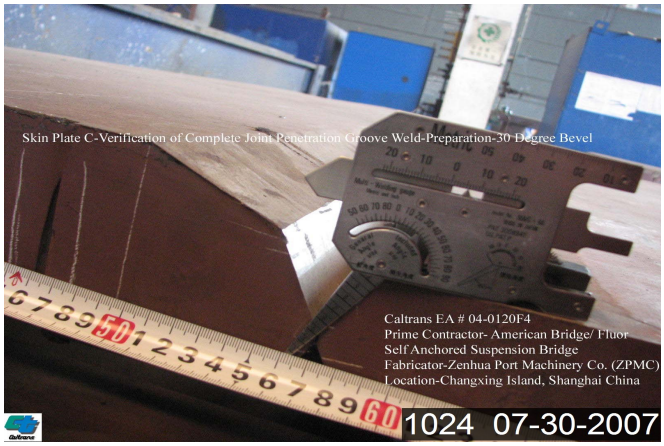
a) Skin plate-C- sub-assembly-this sub assembly consists of three (3) steel plates that will be joined with double vee complete joint penetration groove welds. There is a 90mm thick plate piece mark MP13 that will join to a 60mm thick plate piece mark MA4, 60mm thick plate piece mark MA4 will join to a 90mm thick plate identified as MP12. The Caltrans QA Inspector performed dimensional verification of the identified steel skin plates and recorded that the

width of plate MP13 is 570cm verses the drawing dimension of 560cm, MA4 has a width of 204cm verses the drawing of 207cm, MP12 was measured to have a width of 710.5cm verses the drawing width of 710cm. The measured double vee complete joint penetration groove angles reflected an included angle of sixty (60) degrees for both sides of the prepared joint splices.

b) Skin plate-E sub-assembly- this sub assembly consists of two (2) steel plates that will be joined with a double vee complete joint penetration groove weld. There is a 75mm thick plate piece mark MA1-1 that will join to a 100mm thick plate piece mark MP15. The Caltrans QA Inspector performed dimensional verification of the identified steel skin plates and recorded that the width of plate MA1-1 is 157 cm as identified on the drawing, MP15 has a width dimension of 83 cm verses the drawing measurement of 82cm. The measured double vee complete joint penetration groove angles reflected an included angle of sixty (60) degrees for both sides of the prepared joint splice.

c) Skin plate-D- sub-assembly- this sub assembly consists of two (2) steel plates that will be joined with a double vee complete joint penetration groove weld. There is a 60mm thick plate piece mark MUSA-MA5 that will join to a 90mm thick plate piece mark MP14. The Caltrans QA Inspector performed dimensional verification of the identified steel skin plates and recorded that the width of plate MA5 is 239cm verses the drawing dimension of 238cm, MP14 has a width of 75.5cm verses the drawing of 75cm. The measured double vee complete joint penetration groove angles reflected an included angle of sixty (60) degrees for both sides of the prepared joint splices.

The Caltrans QA Inspector observed that there are no ZPMC Quality Control distinguishing marks that identify dimensional verification of the identified plates or verification of the complete joint penetration groove angles. ZPMC also has not provided any records that identify the inspection of such items per the fabrication procedure. The Caltrans QA Inspector has observed minimal participation of ABF personnel monitoring the Caltrans Tower mock-up fabrication in progress. Included below are digital pictures of the observation of the identified skin plates which also include ZPMC representative Mr. Xu Jun (Eric).



2 N/A N/A N/A

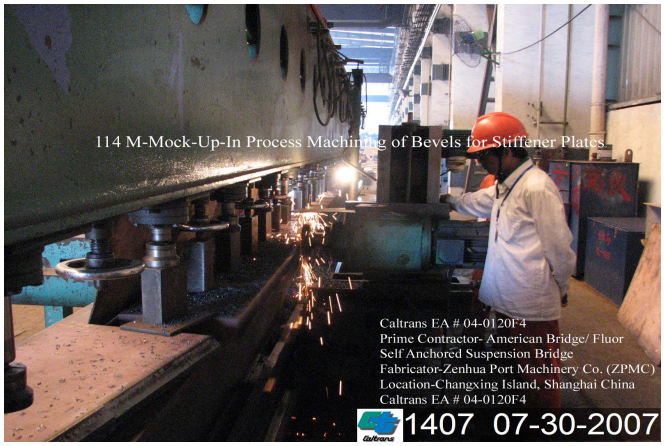
Tower Shop -89 Meter Mock-Up Assembly Area

The Caltrans QA Inspector observed that ZPMC has positioned two skin plate sub-assemblies on elevated steel supports. One of the 90 mm thick skin plates is identified for use as Skin Plate A with a piece number MA21. The second skin plate is positioned where the identification markings are not accessible. Included below is a digital picture of the observed two 90mm steel plates.

3 N/A N/A N/A

Tower Shop -114 Meter Mock-Up Assembly Area

The Caltrans QA Inspector observed that ZPMC is continuing with the machining of bevels on numerous stiffener plates. Several of the 70 mm thick steel plates were identified as piece numbers PP20-7, PP20-8 and MP1008-1. Included below is a digital picture of this observation.



4 N/A N/A N/A

2) Closed Rib beveling- The Caltrans QA Inspector observed that there are approximately fourteen (14) ZPMC workers that are participating in the beveling of two closed ribs identified as piece numbers V-72 and V-75. The Caltrans QA Inspector questioned the ZPMC Represenative Mr. Xu Jun (Eric) as to whether or not the beveling of the closed ribs is for purposes of practice or actual trial closed ribs since the observed closed ribs contain the ZPMC number of ZP06-787, which represents the Caltrans project. Mr. Xu Jun voiced that these two closed ribs are scheduled for use for the Caltrans closed rib trials. It was not clear if these closed ribs were to be used for welding purposes or for purposes of demonstrating ZPMC's press forming operation for the closed ribs. Mr. Xu Jun voiced that ZPMC utilizes a circled alpha letter P to indicate that such components are for practice purposes only. Included below is a digital picture of the circled letter P on a closed rib identified as V-91 that was being beveled.

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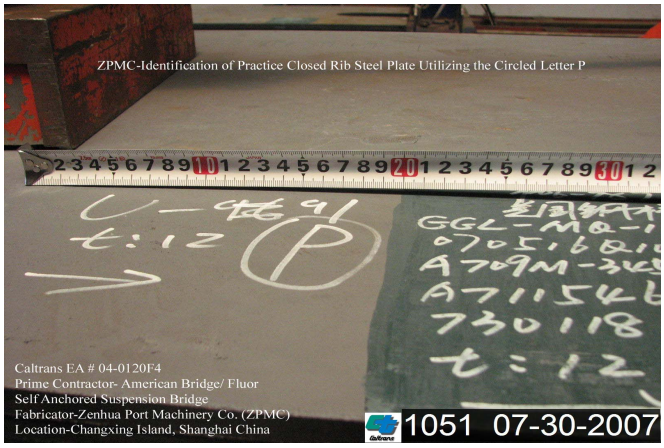

Summary of Conversations:

1) As identified within the contents of this report. 2) The Caltrans QA Inspector explained to Caltrans on-site representatives Mr. Jim Merrill, Mr. Pete Siegenthaler, Mr. Stan Ku, Mr. Dave McClary and Mr. John Kinsey the method Kiewit Offshore Services (KOS) utilized to assemble the tower base plate template. The Caltrans QA Inspector voiced that KOS utilized electronic data and also the physical installation of the template to verify a 5mm annulus around the tower base plate template and the dowels and anchor rods on the tower footing assembly. The Caltrans QA Inspector also voiced that KOS utilized come-alongs and dogs (fit-up aids) and wedges to position the template within a 5mm annulus of the anchor bolt holes and dowels. It was noted that KOS did not fit the tower base plate onto the tower footing in a neutral position that was unassisted.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By:	Cuellar,Robert	Quality Assurance Inspector
Reviewed By:	McClary,David	QA Reviewer